

# DEXATEK

## DK9176A Bluetooth Low Energy Module Specification

### Revision History

This table describes the changes to the specification.

Version	Date	Description
1.0.0	2020/11/16	Official Release
2.0.0	2020/11/27	Modify Info

## Table of Contents

1. Introduction.....	3
2. Key Features .....	4
3. Block Diagram.....	5
4. Specifications.....	6
5. Module Pin Definition .....	7
6. Product dimensions.....	8
7. RF Layout Suggestion .....	10
8. Packaging Info .....	11

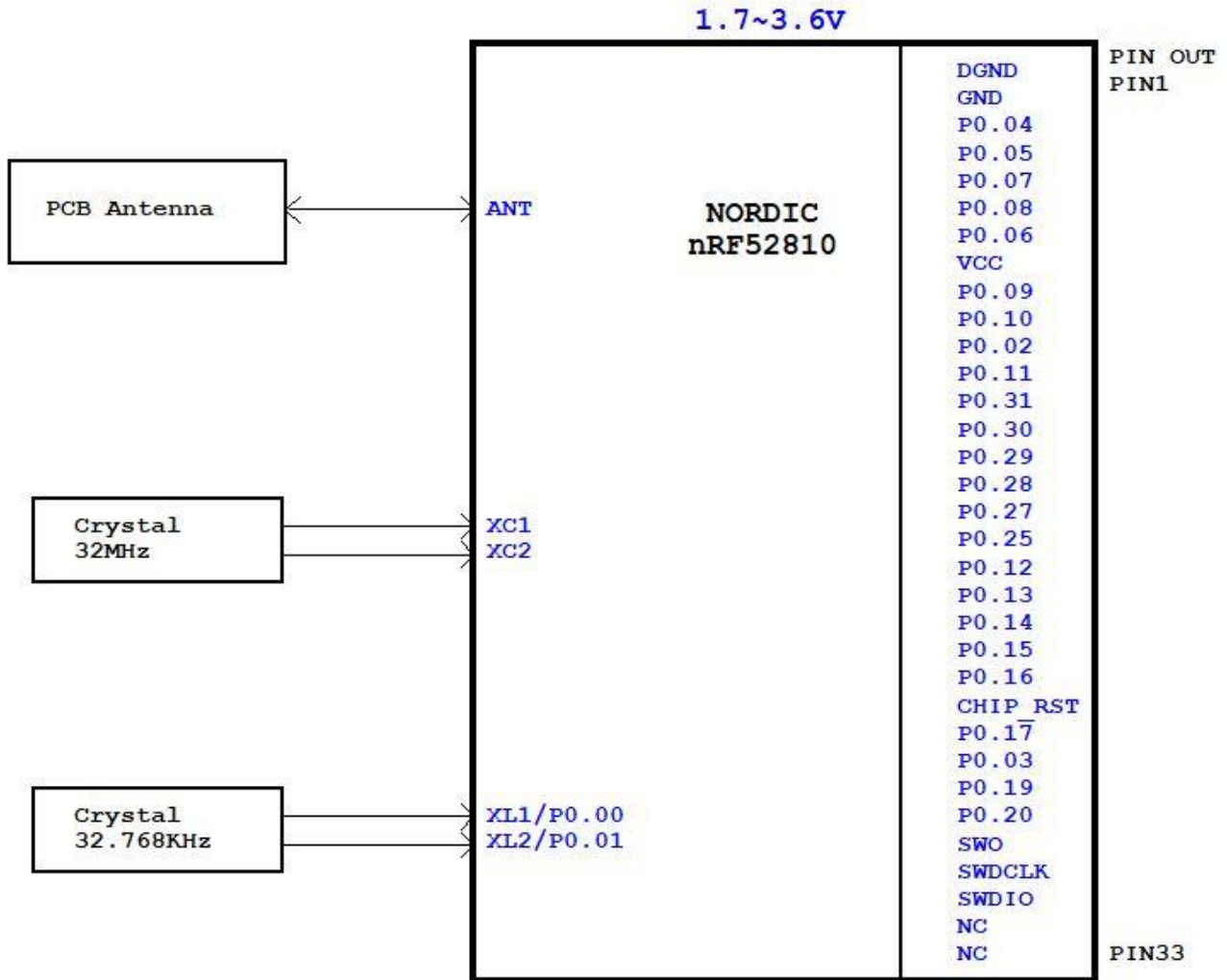
## I. Introduction

The DK9176A is compact, surface mount Bluetooth Low Energy (BLE) compliant wireless module. The module is based on Nordic nRF52810 radio Transceiver IC, has a 32 bit ARM ® Cortex™-M4 64MHz, Flash memory, analog and digital I/O. It can form large scale industrial mesh networks for several applications such as metering. Since its small size, outstanding performance at low power consumption and ultra-low cost, the DK9176A is leading the way for the new generation of Bluetooth low energy modules.


## II. Key Features

- 32-bit ARM® Cortex™-M4 64MHz
- 2.4GHz multi-protocol transceiver
- Data rates: 1Mbps, 2Mbps Bluetooth low energy mode (Bluetooth 5 compatible)
- Sensitivity of -96 dbm for Bluetooth low energy
- 192kB flash, 24kB RAM
- Flexible power management , DC/DC power mode
- Wide supply voltage range: LDO (1.7 to 3.6V), Buck DC/DC (1.7 to 3.6V)
- Flexible and configurable 24 GPIO
- Ultra low-power 32kHz crystal and RC oscillators
- Peripheral 12-bit/200KSPS ADC, Temperature sensor
- Digital I/O
- SPI Master/Slave, 2-wire Master/Slave
- UART (CTS/RTS) with Easy DMA
- AES HW encryption
- Quadrature Decoder (QDEC)

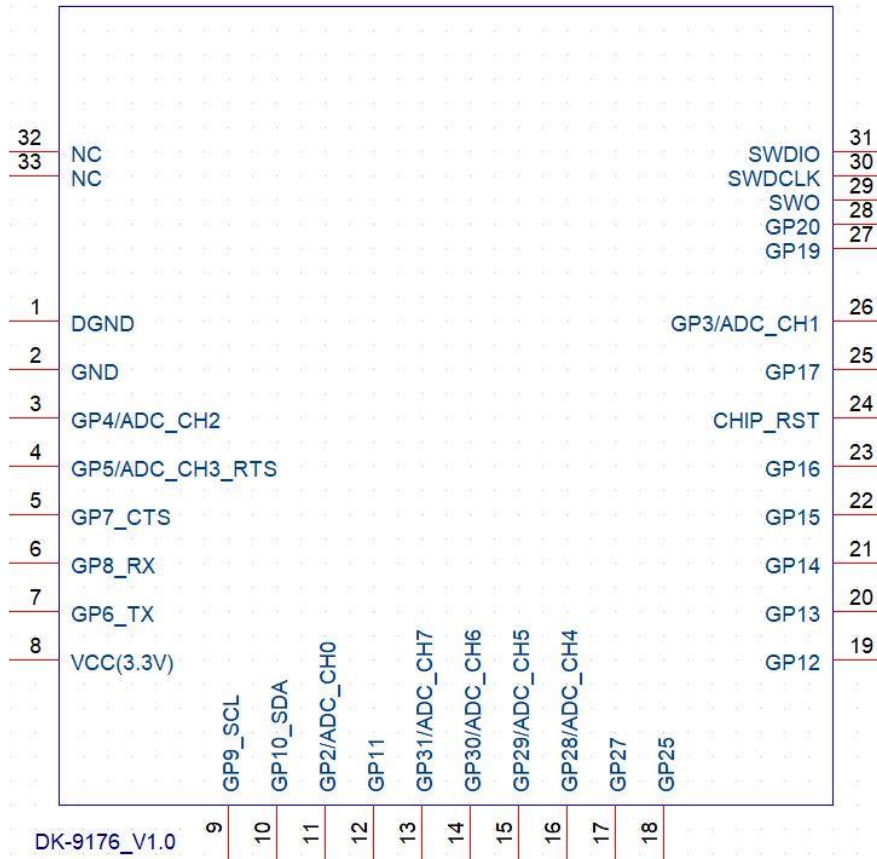
### III. Block Diagram



## IV. Specification

	DK-9176A
<b>Model</b>	
<b>Antenna</b>	PCB Antenna
<b>Main Chip</b>	nRF52810
<b>Application</b>	Non-Home kit Alarm System TaiSEIA & BLE 5.0
<b>CP MFi / PA</b>	W/O MFi CP W/O PA
<b>Transmit Power</b>	Tx Maxmum@ 4dBm
<b>Wireless Standards</b>	Bluetooth ® 5
<b>Data Rates</b>	2Mbps (Bluetooth ® 5)
<b>Work Mode</b>	Bluetooth ® 5
<b>Frequency Range</b>	2400MHz---2483.5MHz
<b>Power Consumption (in different states)</b>	TX Peak@ 4dBm : 7mA RX Peak : 4.6mA
<b>Voltage:</b>	1.7V-3.6V
<b>Modulation Technique</b>	GFSK Modulation
<b>Wireless Security</b>	AES HW Encryption
<b>Dimension(W×D×H)</b>	25×17×2.4 mm
<b>Certification</b>	RoHS / Declaration ID / BQB Test / FCC/ CE RF
<b>Environment</b>	Operating Temperature: -10°C~45°C Storage Temperature: -20°C~65°C

## V. Module Pin Definition

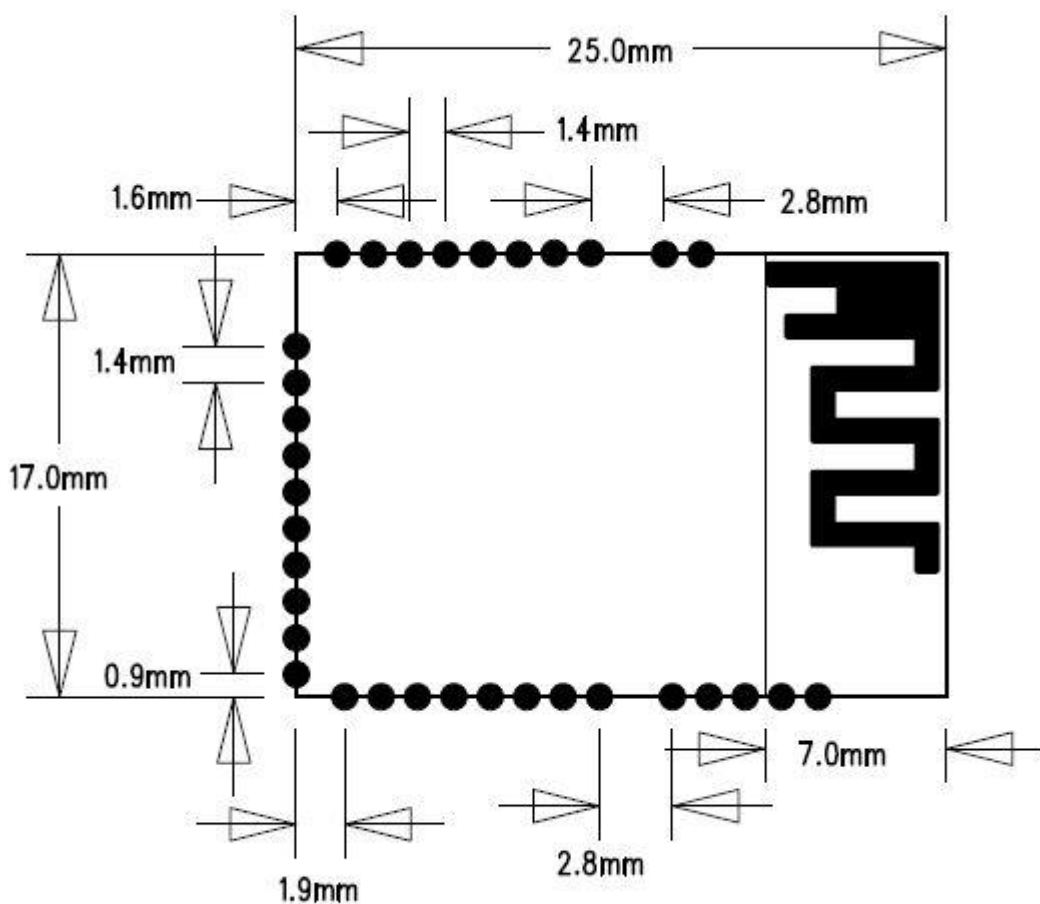


DK-9176A Module Pin Definition			
1	<u>DGND</u>	18	GP25
2	<u>GND</u>	19	GP12
3	GP4	20	GP13
4	GP5	21	GP14
5	GP7	22	GP15
6	GP8	23	GP16
7	GP6	24	CHIP_RST
8	<u>VCC</u>	25	GP17
9	GP9	26	GP3
10	GP10	27	GP19
11	GP2	28	GP20
12	GP11	29	SWO
13	GP31	30	<u>SWDCLK</u>
14	GP30	31	<u>SWDIO</u>
15	GP29	32	NA
16	GP28	33	NA
17	GP27		

## VI. Product Dimension

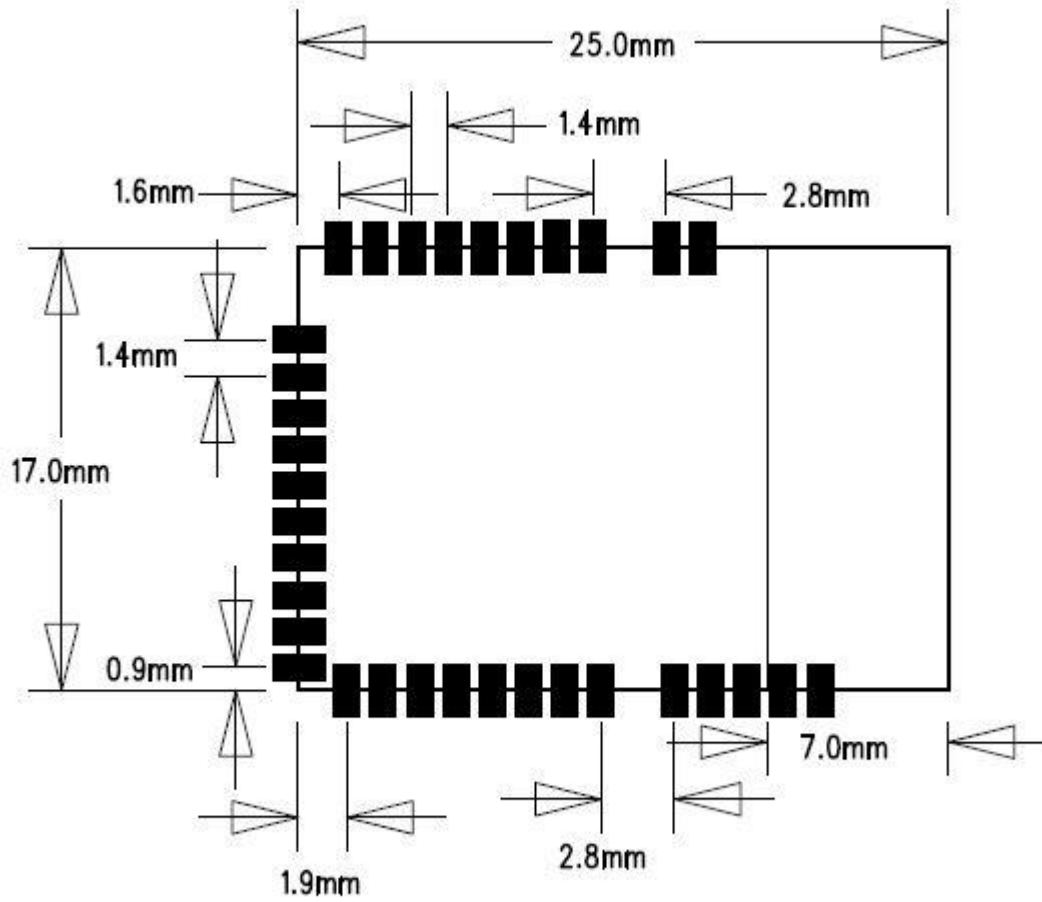
- PCB SIZE: (W) 25 x (D) 17 mm
- PIN OUT: 33
- Recommended Layout of solder Pad

TOP Layer



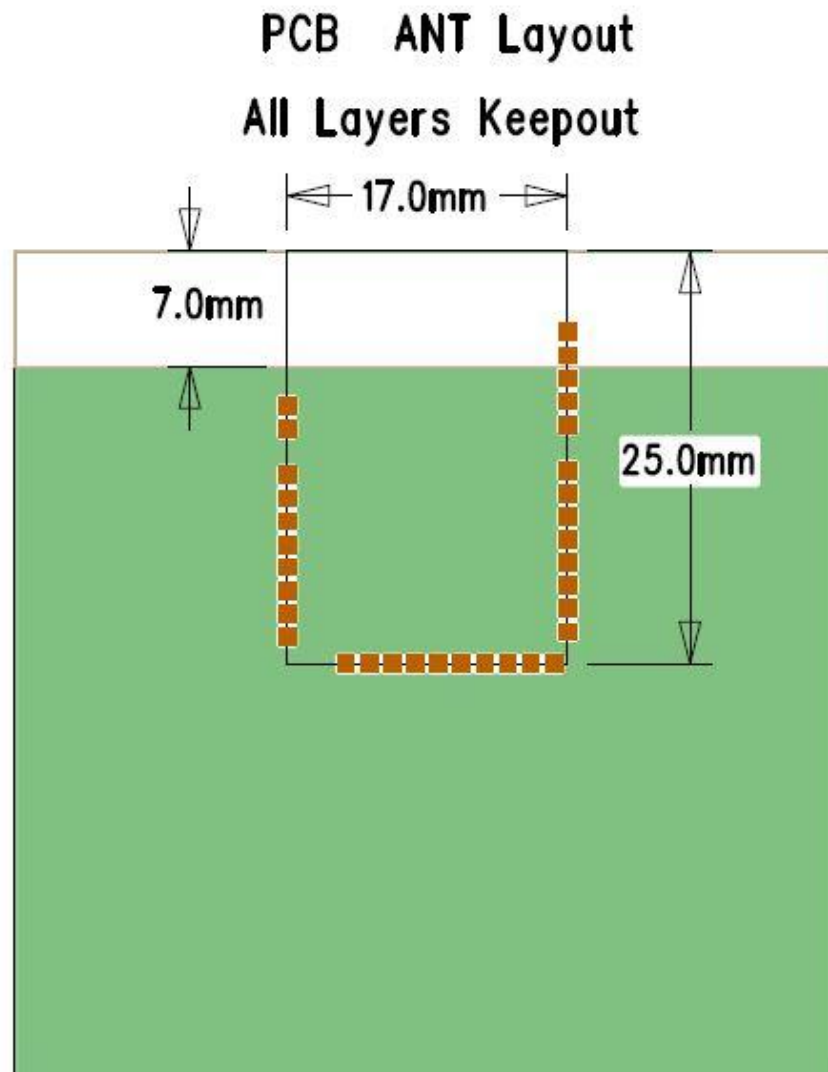


BOTTON Layer



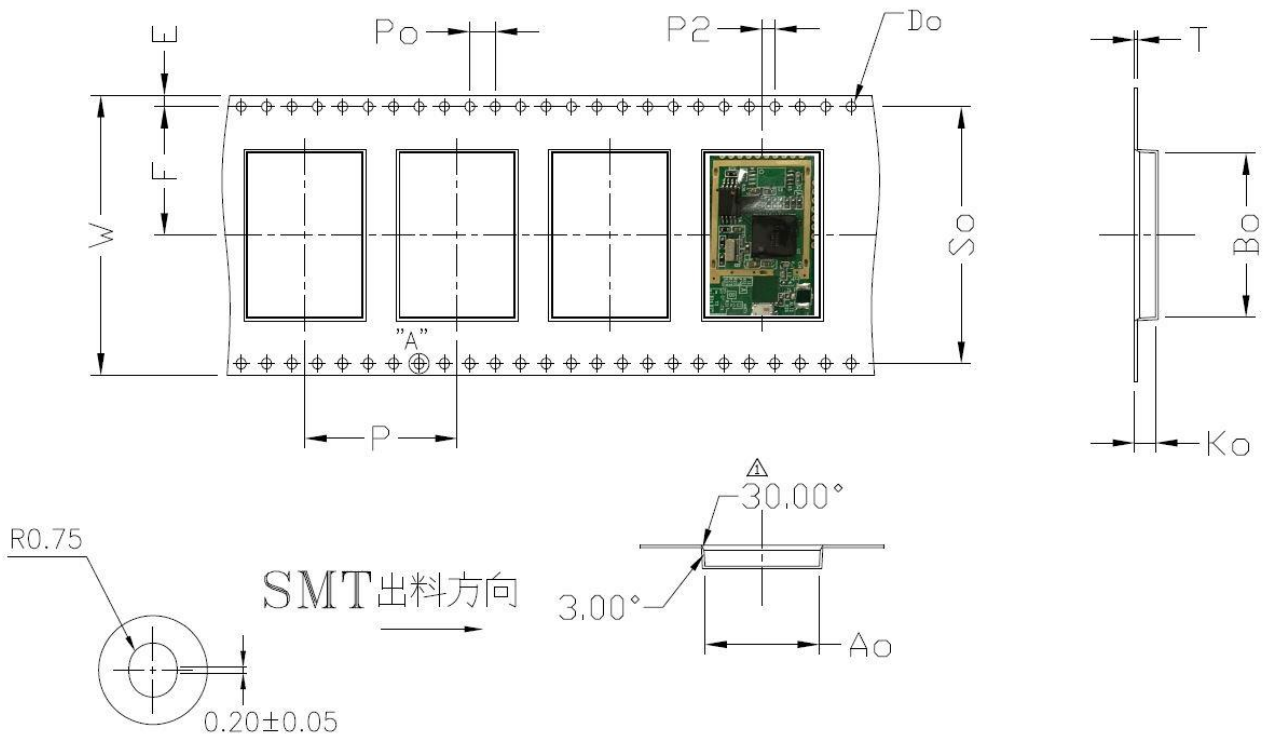
## VII. RF Layout Suggestion

Please follow below instruction to avoid RF Performance lose.



# VIII. Packaging Info

## ● Reel Packaging



ITEM	DIM	ALTERNATE
W	44.00 <sup>+0.30</sup> <sub>-0.30</sub>	
E	1.75 <sup>+0.10</sup> <sub>-0.10</sub>	
F	20.20 <sup>+0.15</sup> <sub>-0.15</sub>	
So	40.40 <sup>+0.10</sup> <sub>-0.10</sub>	
P	24.00 <sup>+0.10</sup> <sub>-0.10</sub>	
P <sub>0</sub>	4.00 <sup>+0.10</sup> <sub>-0.10</sub>	
P <sub>2</sub>	2.00 <sup>+0.15</sup> <sub>-0.15</sub>	
Do	∅1.50 <sup>+0.10</sup> <sub>-0.00</sub>	
T	0.40 <sup>+0.05</sup> <sub>-0.05</sub>	
A <sub>0</sub>	18.00 <sup>+0.10</sup> <sub>-0.10</sub>	
B <sub>0</sub>	25.80 <sup>+0.10</sup> <sub>-0.10</sub>	
K <sub>0</sub>	3.30 <sup>+0.10</sup> <sub>-0.10</sub>	